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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/834,198

04/12/2001

Tapani Ryhanen

297-010255-US(PAR)

3943

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7590

04/14/2005

PERMAN & GREEN  
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EXAMINER

DEMAKIS, JAMES A

ART UNIT

PAPER NUMBER

2836

DATE MAILED: 04/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 09/834,198	<b>Applicant(s)</b> RYHANEN ET AL.	
	<b>Examiner</b> James A. Demakis	<b>Art Unit</b> 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on RCE of 3/31/2005; Amend. of 2/28/2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7, 9-37, 39, 41 and 42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 41 and 42 is/are allowed.
- 6) ☒ Claim(s) 1-7, 9, 13, 19, 20, 37 and 39 is/are rejected.
- 7) ☒ Claim(s) 10-12, 14-18 and 21-36 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>Reasons for Allowance</u> .            |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 18 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 42. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-7,9,13,37,39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bozler et al., 5784189, and in view of Banks, 3387194.

Regarding claims 1-7,9,13,37,39; Bozler et al discloses a voltage waveform Figure11 for controlling the electrodes of a shutter, which reads on the MEM switch. The generated waveform of the voltage includes a turn on or raised voltage higher than a hold voltage level and fed to control MEM switch, see Figure 11 and 11:26-41.

Additionally, the control signal may be a constant voltage or DC or the waveform could

contain AC, which reads on sinusoidal or varying frequency, short duration pulses; see Figure 12 and 11:42-53. Bozler et al. also, disclose MEMS driven with drive and hold voltages or control signal waveforms, but do not disclose how to generate these voltages or control waveform signals.

Banks discloses a typical way of creating different voltage levels by connecting batteries in parallel or series. See Figure 2 for two different voltage levels. The way in which the levels are created, reads on adding the first and second control signals to create a larger signal. For instance, level 1 uses batteries in parallel, and level 2 uses series connected batteries.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Bozler et al. with the teachings of Banks for creating larger voltage or drive levels because of the inherent switching characteristics of the circuit to provide different voltages and improve overall efficiency.

4. Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bozler et al. as applied to claims 1-7,9,13,37,39 above, and in view of Pond, 5943223.

Regarding claims 19-20; Bozler et al. disclose a MEM system but do not disclose voltage converter circuits.

Pond discloses a MEM switch circuit in voltage converters including a DC/DC converter and attendant circuit elements such as transistor switches 46, inductor 104, capacitor 106, etc.; see Figures 6, 8 and 9:60-67, 10:43-57.

It would have been obvious to one having ordinary skill in the art at the time of the invention to have modified Bozler et al with the teachings of Pond by using a power converter to minimize power consumption and increase the transition speed of the MEM switch.

***Allowable Subject Matter***

5. Claims 10-12, 14-17, 21-36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claims 41-42 are allowed.

7. The following is an examiner's statement of reasons for allowance:

The prior art does not disclose or suggest a micromechanical element, with all the claimed combinations, including setting to the active state with a sum of the first control signal and the second control signal, and further the means for feeding the sum of the first control signal and the second control signal with a raised voltage level to the micromechanical element, wherein at least one control electrode is at least partly covered by a dielectric layer to prevent galvanic contact between the electrodes and the micromechanical element; and a second switching transistor resets the charge of the intrinsic capacitance of the micromechanical element.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany

the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Response to Arguments***

8. Applicant's arguments filed 2/28/2005 have been fully considered but they are not persuasive.

Applicant's arguments are not supported by his claim language. Applicant argues that he has a first and second control signal. Why would these signals distinguish over the voltage produced by the first and second stacks of batteries (16,17) in Banks? Applicant states subsequent holding is handled by the first control signal "alone". This is incorrect. The claim states holding is accomplished by "at least the first control signal", which is open to additional signals also being used. Applicant argues the drive and hold voltages of Bozler do not directly correspond to the first and second control signals. While these may not correspond to applicant's intended meaning, as disclosed in the specification, there is no distinguishing claim language. Applicant argues Bozler does not disclose summing two control signals. This is correct. Banks discloses this feature and was cited for specifically this teaching. Applicant states Banks only discloses banks of batteries in various serial or parallel configurations. The output of these battery banks reads on the "control signal". Applicant states "nothing in Banks is of relevance when studying Applicant's invention as claimed". This statement is irrelevant, since this is not the test for obviousness. One considers what one of ordinary skill in the art at the time of the Applicant's invention would have done when confronted with the teachings of the references cited by the examiner. This analysis does not require a determination of

the test for obviousness. One considers what one of ordinary skill in the art at the time of the Applicant's invention would have done when confronted with the teachings of the references cited by the examiner. This analysis does not require a determination of relevance of either of the references to the Applicant's invention, but instead of their relevance to one another. Applicant states his invention does not need any high voltage signals. Note that the sum of the two control signals apparently is a high voltage signal. If Applicant meant to say without any high voltage sources, then Banks meets this unclaimed goal of Applicant. Applicant states Banks does not disclose summing of signals. Apparently, applicant is attempting to distinguish "control signals" from voltages output from batteries. This distinction is not supported by any claim limitation. Applicant's signals have a voltage level that is used to move a mechanical element; Bozler discloses voltages are needed to move a mechanical element; and Banks discloses a manner for creating voltages that produce the profile required in Bozler. It is unclear how applicant's control signals that have a voltage are different than Banks batteries that output a voltage. Banks in Figure 2 discloses a first bank and a second bank of batteries that each have a voltage output and when placed in series has a voltage output that is the sum of the individual voltage outputs of each bank of batteries.


### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Demakis whose telephone number is 571.272.2050. The examiner can normally be reached on 7:30AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on 571.272.2800 ext. 36. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James A. Demakis



4-13-05

**STEPHEN W. JACKSON**  
**PRIMARY EXAMINER**